

A systematic review and meta-analysis of prevalence of protein-energy malnutrition in the international community: A look at the influence of region, rurality, setting and gender (the macro study)

Crichton, Megan; Craven, Dana L.; Mackay, Hannah; Marx, Wolfgang; Marshall, Skye

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Protein-Energy Malnutrition

A systematic review and meta-analysis of prevalence of protein-energy malnutrition in the international community: A look at the influence of region, rurality, setting and gender (The MACRo Study).

Dr Skye Marshall

BNutr&Diet(Hons1), PhD, APD, AN

skye_marshall@bond.edu.au

Under review at Age & Ageing



Megan
Crichton
**Bond
University**



Dr Dana
Craven
JB



Hannah
Mackay
**Mater
Hospital**



Dr Marian de
van der
Schueren
**VA Medical
Centre
Amsterdam**



Dr Wolfgang
Marx
**Deakin
University**



All researchers declare no potential or actual conflicts of interest

A success story...

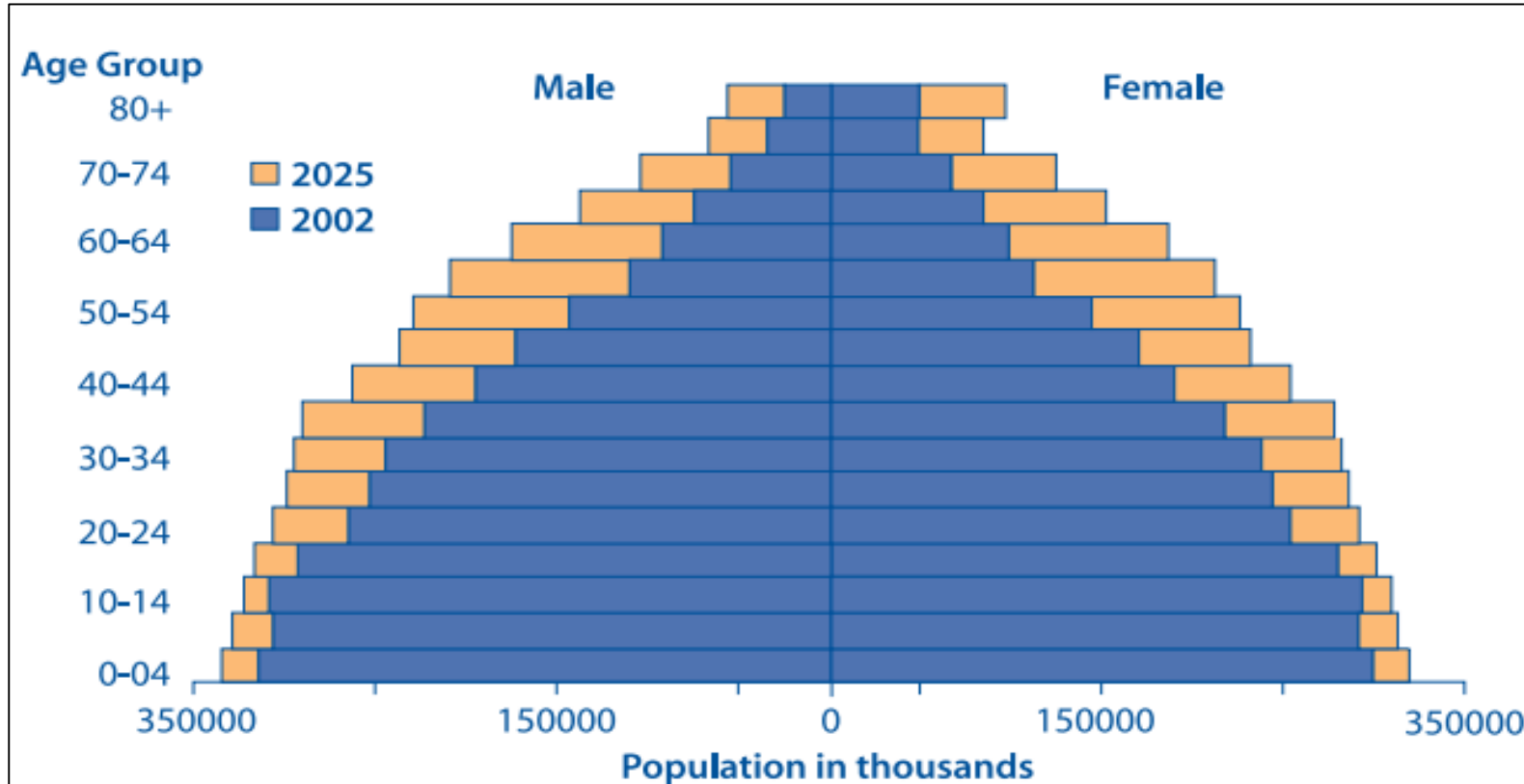
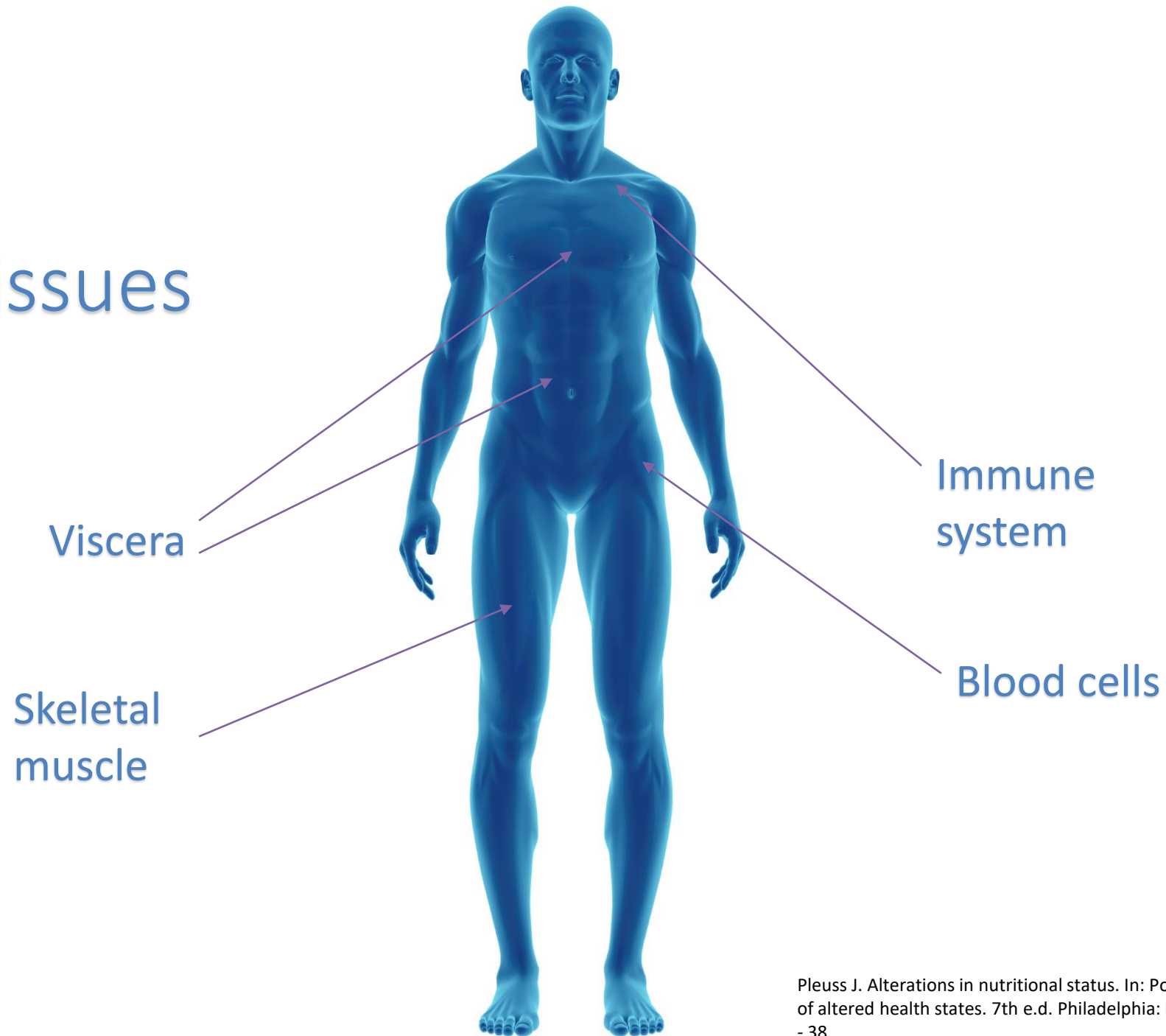


Figure 1.1: Global population pyramid in 2002 and 2025 indicating the triangular pyramid of 2002 will be replaced with a more cylinder-like shape in 2025.

Lean tissues



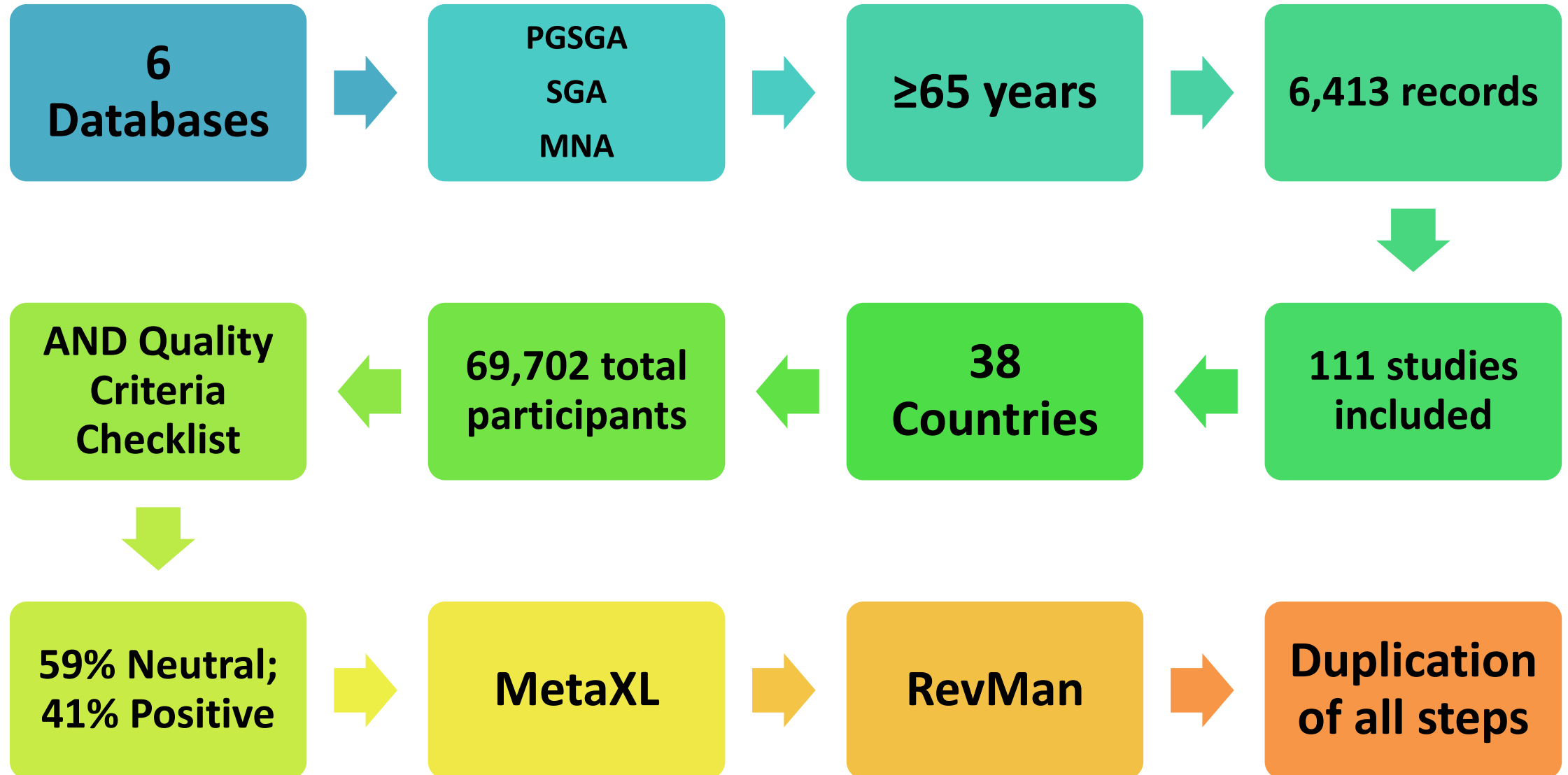
Malnutrition prevalence??

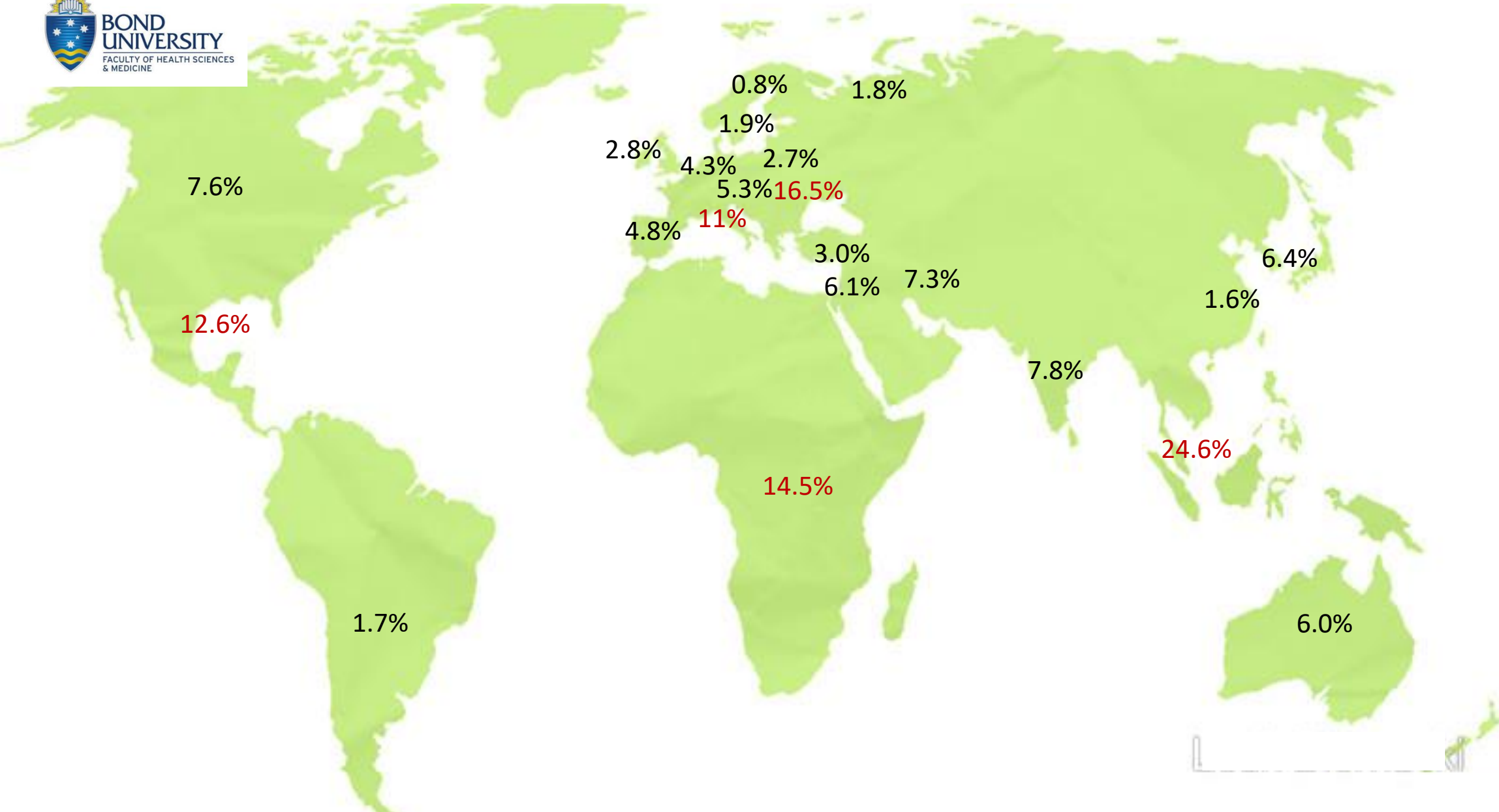
- 2009 DAA Best Practice Guidelines:

- Literature search concluded August 2006
- ? population
- ? Rural / metropolitan
- ? Method of diagnosis

Setting	Prevalence	Contributing studies
Acute care	20 – 50%	5 studies (3 Australian)
Rehabilitation	30-50%	5 studies (4 Australian)
Residential aged care	40 – 70%	3 studies (1 Australian)
Community	10 – 30%	3 studies (2 Australian)

SLR Methods & Findings





North America

Community (n=1,112) = **6.1%**

Home care (n=198) = **12.1%**

Hospital outpatient (n=0) = ?

Nationally representative (n=0) = ?

Post-hospital (n=0) = ?

Primary health (n=621) = **9.5%**

South America

Community (n=1,908) = **2.1%**

Home care (n=0) = ?

Hospital outpatient (n=97) = **0%**

Nationally representative (n=0) = ?

Post-hospital (n=0) = ?

Primary health (n=0) = ?

Europe

Community (n=31,001) = **2.8%**

Home care (n=2,025) = **11.2%**

Hospital outpatient (n=0) = ?

Nationally representative (n=3,071) = **3.3%**

Post-hospital (n=82) = **4.9%**

Primary health (n=2,867) = **5.7%**

South America

Community (n=370) = **28.4%**

Home care (n=0) = ?

Hospital outpatient (n=500) = **7.8%**

Nationally representative (n=0) = ?

Post-hospital (n=0) = ?

Primary health (n=0) = ?

Asia

Community (n=16,476) = **5.7%**

Home care (n=462) = **14.6%**

Hospital outpatient (n=1,304) = **10.2%**

Nationally representative (n=2,674) = **2.7%**

Post-hospital (n=0) = ?

Primary health (n=3,151) = **7.7%**

Australia

Community (n=38) = **5.3%**

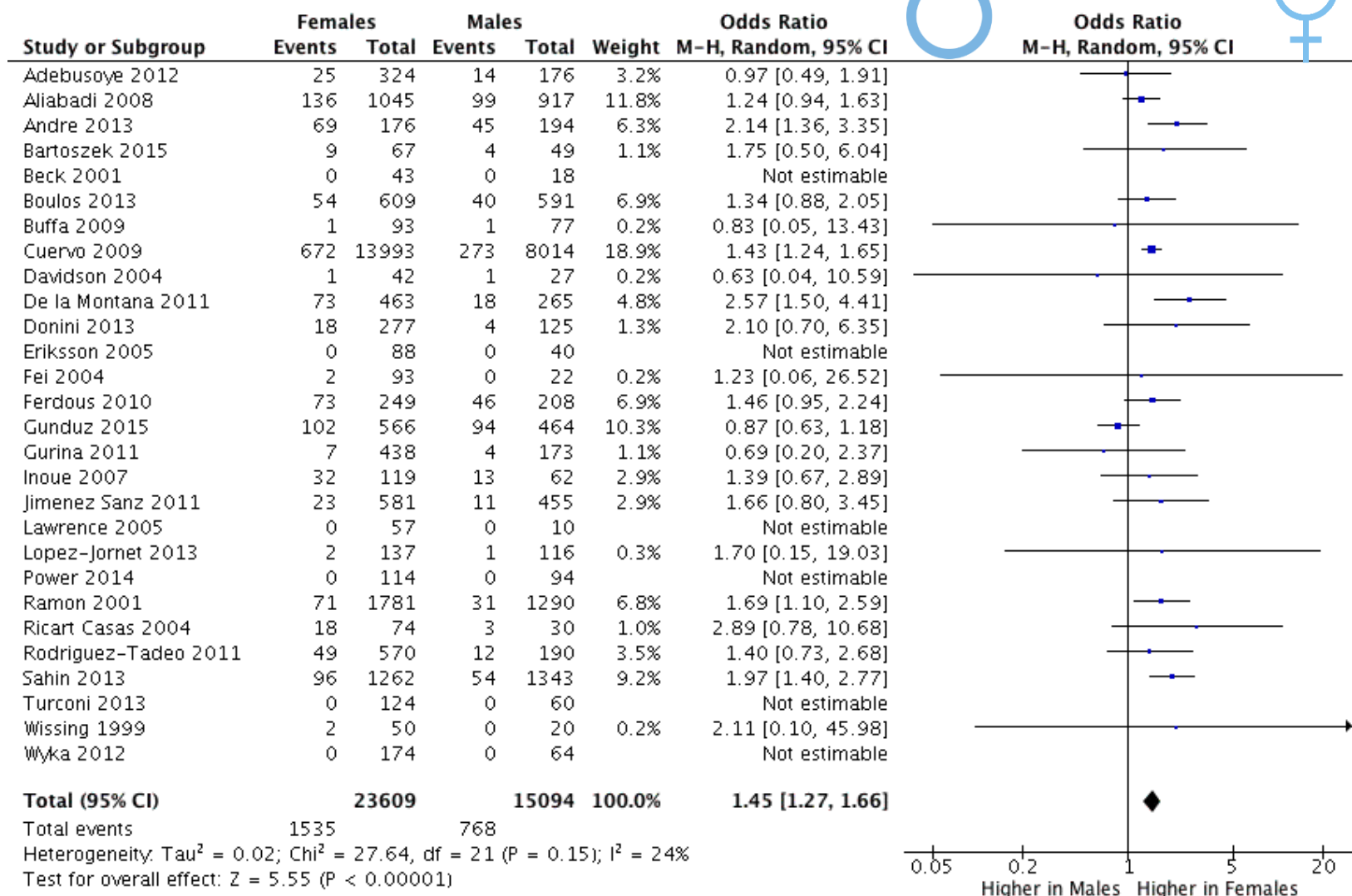
Home care (n=598) = **6.3%**

Hospital outpatient (n=0) = ?

Nationally representative (n=0) = ?

Post-hospital (n=223) = **4.9%**

Primary health (n=0) = ?



Protein-energy malnutrition prevalence was **higher among females** than males (**OR 1.45** [95% CI: 1.27 – 1.66]; $P < 0.00001$; $n = 24$ studies; $n = 38,703$ participants; $I^2 = 24\%$).

Urban

- 69 studies
- n=21,834 total participants



5.7%
[95%CI: 4.2-
7.3%]
 $I^2=95.9\%$

Rural

- 17 studies
- n=5,822 total participants

9.9%
[95%CI: 4.5-
16.8%]
 $I^2=98.2\%$



Take Away Message



- People, not numbers
- Prioritise research in North America, South America, Africa, Oceania
- Translate to public health policy, post-discharge support, community programs